

In the Claims:

Please amend the claims of the above-identified application so as to read as follows:

1. (Currently Amended) A signal line drive circuit provided with a reference voltage chooser circuit for choosing one of multiple incoming voltages in accordance with tones represented by an image signal to output the chosen voltage as a signal line drive signal, comprising
reference voltage transmission means for simultaneously directly transmitting multiple first reference voltages from external first reference voltage supply means to the reference voltage chooser circuit.

2. (Currently Amended) A signal line drive circuit provided with a reference voltage chooser circuit for choosing, in accordance with tones represented by an image signal, a voltage among multiple reference voltages supplied to the signal line drive circuit to output as a signal line drive signal, wherein:
a second reference voltage produced by voltage division from at least two first reference voltages is supplied to the reference voltage chooser circuit via a buffer circuit having a high input impedance and a low output impedance;
and
the first reference voltages are simultaneously directly supplied to the reference voltage chooser circuit from external first reference voltage supply means.

3. (Currently Amended) A signal line drive circuit provided with a reference

voltage chooser circuit for choosing, in accordance with tones represented by an image signal, a voltage among multiple voltages supplied to the reference voltage chooser circuit to output as a signal line drive signal, wherein:

multiple first reference voltages are supplied simultaneously and directly from external first reference voltage supply means to the reference voltage chooser circuit;

a second reference voltage produced by voltage division from at least two of the first reference voltages is supplied to the reference voltage chooser circuit via a buffer circuit having a high input impedance and a low output impedance; ~~among power supply voltages supplied to the reference voltage chooser circuit, at least a~~ when a buffer circuit power supply voltage is supplied to the buffer circuit via a first switch controlled ~~through~~ by a first control signal; and

the reference voltage chooser circuit chooses one of incoming voltages to output as a signal line drive signal in accordance with the tones represented by the image signal.

4. (Original) The signal line drive circuit as defined in claim 3, wherein

the first switch is controlled in accordance with the number of tones represented by the image signal.

5. (Currently Amended) A signal line drive circuit, provided with a voltage chooser circuit and a voltage divider circuit for producing a second reference voltage by voltage division from at least two first reference voltages ~~that also are,~~ the at least two first reference voltages being supplied simultaneously directly to the voltage chooser circuit from external first reference voltage supply means, and a buffer circuit for selectively providing the second reference voltage to the voltage chooser circuit in response to a first control signal ~~via a buffer circuit~~, the signal line drive circuit outputting a signal line drive signal in accordance with tones represented by an image signal, wherein
- a second switch controlled ~~through~~ by a second control signal is interposed between the first reference voltages and the voltage divider circuit.

6. (Original) The signal line drive circuit as defined in claim 5, wherein
- the second switch is controlled in accordance with the number of tones represented by the image signal.

7. (Currently Amended) A signal line drive circuit, comprising:
- a sampling circuit for sampling an image signal so as to generate
- a sampling signal representative of the number of tones contained in said image signal;
- a reference voltage chooser circuit for choosing a reference voltage in accordance with
- the sampling signal to output a signal line drive signal from among multiple first reference voltages simultaneously directly supplied to the reference voltage chooser circuit from external first reference voltage supply means, and a second reference voltage produced by voltage division from at least two of the first reference voltages supplied to the reference voltage chooser circuit via a buffer circuit having a high input impedance and a low output impedance; and

a decoder circuit for controlling the reference voltage chooser circuit in accordance with the sampling signal ;
wherein:
the decoder circuit is controlled ~~through~~ by a third control signal according to a decoder table determined by the number of tones represented by the sampling signal; and
the reference voltage chosen by the reference voltage chooser circuit ~~changes a reference voltage choosing pattern~~ in response to an output of the decoder circuit.

8. Canceled, without prejudice.

9. (Currently Amended) A signal line drive circuit including:
a sampling circuit for sampling an image signal;
a voltage divider circuit for producing a second reference voltage by voltage division from multiple first reference voltages from external voltage supply means supplied to the signal line drive circuit; and
a reference voltage chooser circuit for choosing one of said first or second reference voltages to output as a signal line drive signal,
the first reference voltages being supplied simultaneously directly to the reference chooser circuit and the second reference voltage being supplied to the reference voltage chooser circuit via a buffer circuit having a high input impedance and a low output impedance,

the signal line drive circuit including a decoder circuit for
controlling the reference voltage chooser circuit in accordance with the sampled
signal and outputting the signal line drive signal in accordance with tones
represented by the sampled signal,
said signal line drive circuit comprising at least any one of:
(i) a first switch to cut off power supply to the buffer circuit;
(ii) a second switch interposed between the first reference
voltages and the voltage divider circuit to cut off the reference voltage supplied to the
voltage divider circuit; and
(iii) a decoder control circuit for changing a decoder table so as to change
a pattern according to which the reference voltage chosen by the reference
voltage chooser circuit chooses a reference voltage in response to said sampled
signal,
wherein
at least any one of the first switch, the second switch, and
the control circuit is set decoder table for the decoder circuit is/are controlled for
closure/opening or changed in accordance with the number of tones represented
by the image signal.

10. (Currently Amended) A signal line drive circuit including:
a sampling circuit for sampling an image signal;
a voltage divider circuit for producing a second reference
voltage by voltage division from at least two first reference voltages supplied to
the signal line drive circuit; and

a reference voltage chooser circuit for choosing one of said first or said second reference voltages to output as a signal line drive signal, the first reference voltages being supplied simultaneously directly to the voltage chooser circuit from external first reference voltage supply means and said second reference voltage being supplied to the reference voltage chooser circuit via a buffer circuit having a high input impedance and a low output impedance,

the signal line drive circuit including a decoder circuit for controlling the reference voltage chooser circuit in accordance with the sampled signal and outputting the signal line drive signal in accordance with tones represented by the sampled signal,

said signal line drive circuit comprising:

- a first switch to cut off power supply to the buffer circuit;
- a second switch interposed between the first reference voltages and the voltage divider circuit to cut off the reference voltage supplied to the voltage divider circuit; and
- a ~~decoder~~ control circuit for changing a decoder table so as to change the reference voltage chosen by a pattern according to which the reference voltage chooser circuit ~~chooses a reference voltage in response to said sampled signal,~~

wherein

when the number of tones represented by the image signal is less than or equal to the number of the first reference voltages, the first switch and the second switch are both opened, and the ~~decoder~~ control circuit ~~switches~~ changes the decoder table to one of the decoder tables that matches the number of tones represented by the image signal.

11. (Currently Amended) An image display device, comprising:

- pixels arranged in a matrix form;
- signal lines connected to the pixels;
- scan lines connected to the pixels;
- a scan signal line drive circuit for supplying scan signals to the scan lines for a vertical scan; and
- a signal line drive circuit for supplying signal line drive signals to the signal lines, the signal line drive circuit including a reference voltage chooser circuit for choosing, in accordance with tones represented by an image signal, a first or a second reference voltage to output as the chosen voltage,

wherein:

- the second reference voltage is produced by voltage division from at least two of the first reference voltages and is supplied to the reference voltage chooser circuit via a buffer circuit having a high input impedance and a low output impedance; and
- the first reference voltages are simultaneously directly supplied to the reference voltage chooser circuit from external first reference voltage supply means .

12. (Original) A portable apparatus, comprising an image display device as defined in claim 11.

13. (Currently Amended) An image display device, comprising:

pixels arranged in a matrix form;
signal lines connected to the pixels;
scan lines connected to the pixels;
a scan signal line drive circuit for supplying scan
signals to the scan lines for a vertical scan; and
a signal line drive circuit for supplying signal line
drive signals to the signal lines, the signal line drive circuit including a
reference voltage chooser circuit for choosing, in accordance with tones
represented by an image signal, a first or a second reference voltage to
output as the chosen voltage,

wherein:

the second reference voltage is produced by voltage
division from at least two of the first reference voltages and is supplied
to the reference voltage chooser circuit via a buffer circuit having a high
input impedance and a low output impedance;
the first reference voltages are supplied simultaneously directly to
the voltage chooser circuit from an external first reference voltage
source; and
~~among power supply voltages supplied to the signal line drive circuit, at least a~~
buffer circuit power supply voltage ~~supplied to the buffer circuit~~ is supplied to
the buffer circuit via a first switch controlled ~~through~~ by a first control
signal.

14. (Original) A portable apparatus, comprising an image display
device as defined in claim 13.

15. (Currently Amended) An image display device, comprising:

- pixels arranged in a matrix form;
- signal lines connected to the pixels;
- scan lines connected to the pixels;
- a scan signal line drive circuit for supplying scan signals to the scan lines for a vertical scan; and
- a signal line drive circuit for supplying signal line

drive signals to the signal lines, the signal line drive circuit including: a ~~voltage divider circuit for producing a second reference voltage by voltage division from multiple first reference voltages from external reference voltage supply means;~~ and a reference voltage chooser circuit for choosing an output from among said first and said second reference voltages in accordance with tones represented by an image signal ; and a voltage divider circuit for producing said second reference voltage by voltage division from multiple first reference voltages simultaneously directly supplied to said voltage chooser circuit from external reference voltage supply means,

wherein

a second switch controlled ~~through~~ by a second control signal is interposed between the first reference voltages and the voltage divider circuit.

16. (Original) A portable apparatus, comprising an image display device as defined in claim 15.

17. (Currently Amended) An image display device, comprising:
- pixels arranged in a matrix form;
 - signal lines connected to the pixels;
 - scan lines connected to the pixels;
 - a scan signal line drive circuit for supplying scan signals to the scan lines for a vertical scan; and
 - a signal line drive circuit including:
 - a sampling circuit for sampling an image signal so as to generate a sampling signal representative of the number of tones contained in the image signal; a reference voltage chooser circuit for choosing an output in accordance with tones represented by the sampling signal from among first reference voltages simultaneously directly supplied to the reference voltage chooser circuit from external first reference voltage supply means and a second reference produced by voltage division from at least two of the first reference voltages supplied to the reference voltage chooser circuit via a buffer circuit having a high input impedance and a low output impedance; and a decoder circuit for controlling the reference voltage chooser circuit in accordance with the sampling signal, the reference voltage chooser circuit supplying signal line drive signals to the signal lines,
- wherein:
- the decoder circuit is controlled ~~through~~ by a third control signal according to a decoder table determined by the number of tones represented by the sampling signal; and
 - the reference voltage chooser circuit changes a the chosen ~~reference voltage choosing pattern~~ in response to an output of the decoder circuit.

18. (Previously Presented) A portable apparatus, comprising an image display device as defined in claim 17.

19. (Currently Amended) An image display device, comprising:
pixels arranged in a matrix form;
signal lines connected to the pixels;
scan lines connected to the pixels;
a scan signal line drive circuit for supplying
scan signals to the scan lines for a vertical
scan; and
a signal line drive circuit including:
a voltage divider circuit for producing a second
reference voltage by voltage division from multiple first
reference voltages supplied to the signal line drive
circuit from external first reference voltage supply
means;
a reference voltage chooser circuit for choosing
among said first reference voltages supplied
simultaneously directly thereto or a second reference
voltage from said voltage divider circuit in accordance
with tones represented by an image signal to output the
chosen voltage;

a sampling circuit for sampling the image signal; and
a decoder circuit for controlling the reference voltage
chooser circuit in accordance with the sampled signal,
the second reference voltage being supplied to the reference
voltage chooser circuit via a buffer circuit having a high input
impedance and a low output impedance,
said signal line drive circuit comprising at least any one of:
(i) a first switch to cut off power supply to
the buffer circuit;
(ii) a second switch interposed between the
first reference voltages and the voltage divider circuit to
cut off the reference voltage supplied to the voltage
divider circuit; and
(iii) a decoder control circuit for changing a decoder
table so as to change a pattern according to which the
reference voltage chosen by the reference voltage
chooser circuit chooses a reference voltage,

wherein

at least any one of the first switch, the second switch, and the ~~decoder table for~~
~~the decoder control circuit is/are controlled for closure/opening or changed~~ is set
in accordance with the number of tones represented by the image signal.

20. (Currently Amended) The image display device as defined in claim 19,

~~further comprising~~ wherein said control circuit comprises a setup circuit
for controlling at least any one of the first switch, the second switch, and
the ~~decoder voltage chooser~~ circuit in accordance with a change in the
number of tones represented by the image signal, so as to switch between
among drive modes of said image display device arbitrarily.

21. (Original) A portable apparatus, comprising an image display
device as defined in claim 19.

22. (Currently Amended) An image display device including:

pixels arranged in a matrix form;
signal lines connected to the pixels;
scan lines connected to the pixels;
a scan signal line drive circuit for supplying
scan signals to the scan lines for a vertical scan; and
a signal line drive circuit including:
a voltage divider circuit for producing a second
reference voltage by voltage division from at least two
first reference voltages;
a reference voltage chooser circuit for choosing
one of said first or second voltages in accordance with
tones represented by an image signal to output as the
chosen voltage;

a sampling circuit for sampling the image signal; and
a decoder circuit for controlling the ~~reference~~
reference voltage chooser circuit in accordance with the
sampled signal,

the first reference voltages being supplied simultaneously
directly to the voltage chooser circuit from external first
reference voltage supply means and the second reference
voltage being supplied to the reference voltage chooser
circuit via a buffer circuit having a high input impedance
and a low output impedance, the signal line drive circuit
supplying signal line drive signals to the signal lines in
accordance with tones represented by the image signal
sampled by the sampling circuit,

said image display device comprising:

a first switch to cut off power supply to the buffer
circuit;

a second switch interposed between the first reference voltages
and the voltage divider circuit to cut off the reference voltage supplied
to the voltage divider circuit; and

a ~~decoder~~ control circuit for changing a decoder table so as to
change a ~~pattern according to which~~ the reference voltage chosen by the
reference voltage chooser circuit ~~chooses a reference voltage;~~

wherein

when the number of tones represented by the image signal is

less than or equal to the number of the first reference voltages, the first
switch and the second switch are both opened, and the ~~decoder~~ control
circuit switches the decoder table to a decoder table one of the decoder
~~tables~~ that matches the number of tones represented by the image signal.

23. (Currently Amended) The image display device as defined in claim 22, further
comprising wherein said control circuit comprises a setup circuit for controlling
at least any one of the first switch, the second switch, and the ~~decoder~~ voltage
chooser circuit in accordance with a change in the number of tones represented
by the image signal, so as to switch ~~between~~ among drive modes of said image
display device arbitrarily.

24. (Original) A portable apparatus, comprising an image display device
as defined in claim 22.